DIFFUSED EXTRINSIC BASE AND METHOD FOR FABRICATION

Abstract of the Disclosure

The present invention provides a unique device structure and method that provides increased transistor performance in integrated bipolar circuit devices. The preferred embodiment of the present invention provides improved high speed performance by providing reduced base resistence. The preferred design forms the extrinsic base by diffusing dopants from a dopant source layer and into the extrinsic base region. This diffusion of dopants forms at least a portion of the extrinsic base. In particular, the portion adjacent to the intrinsic base region is formed by diffusion. This solution avoids the problems caused by traditional solutions that implanted the extrinsic base. Specifically, by forming at least a portion of the extrinsic base by diffusion, the problem of damage to base region is minimized. This reduced damage enhances dopant diffusion into the intrinsic base. Additionally, the formed extrinsic base can have improved resistence, resulting in an improved maximum frequency for the bipolar device. Additionally, the extrinsic base can be formed with a self-aligned manufacturing process that reduces fabrication complexity.